

CLAIMS:

1. An enhancer for increasing the dynamic range of a receiver that detects a signal, the enhancer comprising:  
a downconverter for downconverting the received signal; and  
a coupler for sending the downconverted signal to the receiver;  
wherein the downconverter and the enhancer increase the dynamic range of the receiver.
2. The enhancer of Claim 1 further including at least one filter operative to exclude strong signals.
3. The enhancer of Claim 1 wherein the downconverter comprises:  
a local oscillator operative to generate a local oscillator signal;  
and  
a mixer operative to mix the received signal with the local oscillator signal in order to downconvert the received signal.
4. The enhancer of Claim 3 wherein the receiver comprises an antenna port and the coupler is operative to couple the downconverted signal to the antenna port of the receiver.
5. The enhancer of Claim 3 wherein the mixer is operative to downconvert the received signal to the intermediate frequency of the receiver.
6. The enhancer of Claim 5 wherein the local oscillator is synchronized to the receiver.

7. The enhancer of Claim 6 further comprising a phase lock loop electrically connected to the local oscillator and the receiver in order to synchronize the local oscillator.

5 8. The enhancer of Claim 7 further comprising a serial buffer electrically connected to the phase lock loop and the receiver in order to synchronize the local oscillator.

9. The enhancer of Claim 3 wherein the coupler is a coaxial line operative to couple the enhancer to the receiver.

10 10. The enhancer of Claim 9 further comprising:  
an antenna for detecting the received signal; and  
a duplexer electrically connected to the coupler and the antenna,  
the duplexer operative to transmit and receive signals to and from the coupler.

15 11. An add-on enhancer to increase the dynamic range of a receiver having an antenna port, the enhancer comprising:  
a downconverter for downconverter a received signal to an intermediate frequency of the receiver; and  
an attachable coupling line for sending signals from the downconverter to the receiver;  
20 wherein the dynamic range of the enhancer is greater than the dynamic range of the receiver.

12. The add-on enhancer of Claim 11 further comprising at least one filter operative to exclude strong signals.

13. The add-on enhancer of Claim 11 wherein the downconverter comprises a mixer and a local oscillator operative to downconvert the received  
5 signal to the intermediate frequency of the receiver.

14. The add-on enhancer of Claim 13 wherein the local oscillator is synchronized to the receiver.

15. The add-on enhancer of Claim 14 further comprising a control signal from the receiver to the local oscillator in order to synchronize the local  
10 oscillator to the receiver.

16. The add-on enhancer of Claim 15 further comprising a phase lock loop in electrical communication with the local oscillator and the control signal in order to facilitate synchronization.

17. The add-on enhancer of Claim 13 further comprising a diplexer in  
15 electrical communication with the downconverter and the coupling line.

18. The add-on enhancer of Claim 17 further comprising an antenna in electrical communication with the downconverter and operative to detect the received signal.

19. The add-on enhancer of Claim 18 further comprising a duplexer in electrical communication with the antenna and the duplexer, the duplexer being operative to transmit and receive signals with the antenna.

20. The add-on enhancer of Claim 19 wherein the duplexer and the  
5 duplexer are operative to send and receive signals between the antenna of the add-on enhancer and the antenna port of the receiver.

21. A method of increasing the dynamic range of a receiver having an antenna port with an enhancer, the method comprising the steps of:

- 10 a) receiving a signal with an antenna of the enhancer;  
b) downconverting the signal to an intermediate frequency of the receiver; and  
c) coupling the downconverted signal to the antenna port of the receiver.

22. The method of Claim 21 further comprising the step of filtering  
15 the received signal in order to exclude strong signals.

23. The method of Claim 21 wherein step (b) comprises mixing the signal in order to downconvert the signal.

24. The method of Claim 23 wherein step (b) comprises mixing the signal with a local oscillator signal.

20 25. The method of Claim 24 further comprising the step of synchronizing the local oscillator signal with the receiver.

26. The method of Claim 25 further comprising the step of  
synchronizing the local oscillator signal via a control signal from the receiver.

27. The method of Claim 26 wherein step (c) comprises coupling the  
downconverted signal with a coaxial line in electrical communication with the  
5 antenna port of the receiver.

28. An enhancer for increasing the dynamic range of a receiver, the  
enhancer comprising:

downconversion means for downconverting a signal detected by  
an antenna of the enhancer; and  
10 coupling means for sending the downconverted received signal to  
the receiver.

29. An enhancer for increasing the dynamic range of a receiver  
having an antenna port, the enhancer comprising:

an antenna for receiving the a signal;  
15 a mixer in electrical communication with the antenna and a local  
oscillator signal; the mixer being operative to downconvert the received  
signal to an intermediate frequency of the receiver; and  
a coupler in electrical communication with the mixer and the  
antenna port of the receiver, the coupler being operative to transmit the  
20 downconverted received signal to the receiver.

30. The enhancer of Claim 29 further comprising:  
a duplexer in electrical communication with the antenna and the  
mixer; and  
a diplexer in electrical communication with the duplexer, the  
5 mixer and the antenna port of the receiver;  
wherein the duplexer and the diplexer are operative to send a  
receive signal between the antenna and the antenna port of the receiver.

31. The enhancer of Claim 30 further comprising a local oscillator in  
electrical communication with the mixer, the local oscillator being operative to  
10 provide a local oscillator signal to the mixer to be downconverted with the  
received signal.

32. The enhancer of Claim 31 further comprising a phase lock loop in  
electrical communication with the local oscillator and the receiver, the phase lock  
loop being operative to synchronize the local oscillation signal with the receiver.